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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,084	09/27/2000	Toshihide Ito	335-37	6569

7590 11/02/2004

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401 North Michigan Avenue
Chicago, IL 60611

EXAMINER

IP, SIKYIN

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/671,084

Applicant(s)

ITO ET AL.

Examiner

Sikyin Ip

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 and 5-6 are rejected under 35 U.S.C. § 103 as being unpatentable over JP 10286689 (abstract (57), melting temperature)), JP 10034376 (composition in abstract and melting temperature in Table 1), or USP 6241942 to Murata (composition in abstract and example 1 in col. 8; melting temperature in col. 2, lines 45-50).

DE 19816671 (abstract), JP 10034376 (abstract), or Murata (abstract and example 1 in col. 8) discloses the Pb-free Sn-Ag-Cu solder alloy contains Ni with compositions overlap the claimed solder alloy composition and melting temperature. When prior art compounds essentially "bracketing" the claimed compounds in structural

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similarity are all known, one of ordinary skill in the art would clearly be motivated to make those claimed compounds in searching for new products in the expectation that compounds similar in structure will have similar properties. In re Gyurik, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979); See In re May, 574 F.2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978) and In re Hoch, 57 CCPA 1292, 1296, 428 F.2d 1341, 1344, 166 USPQ 406, 409 (1970). Therefore, it would have been obvious to one of ordinary skill in the art to select any portion of range, including the claimed range, from the broader range disclosed in a prior art reference because the prior art reference finds that the prior art composition in the entire disclosed range has a suitable utility. Also see MPEP § 2131.03 and § 2123.

With respect to the claimed copper dissolution which reads on zero, thus cited references need not disclose said limitation.

With respect to the solder viscosity which is material property. Thus, it would have been inherently possessed by solder materials of cited references.

In re Best, 195 USPQ, 430 and MPEP § 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

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Claims 1-3, 5-6, and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over JP 08132279 (composition in abstract and melting temperature in Example, [0012]).

JP 08132279 discloses the Pb-free Sn-Ag-Cu solder alloy contains Ni and Fe with compositions overlap the claimed solder alloy composition and melting temperature. The Ag, In, Sb, Ni, Fe, and Bi can raise the reinforcement of solder material [0011]. Therefore, when prior art compounds essentially "bracketing" the claimed compounds in structural similarity are all known, one of ordinary skill in the art would clearly be motivated to make those claimed compounds in searching for new products in the expectation that compounds similar in structure will have similar properties. In re Gyurik, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979); See In re May, 574 F.2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978) and In re Hoch, 57 CCPA 1292, 1296, 428 F.2d 1341, 1344, 166 USPQ 406, 409 (1970). Therefore, it would have been obvious to one of ordinary skill in the art to select any portion of range, including the claimed range, from the broader range disclosed in a prior art reference because the prior art reference finds that the prior art composition in the entire disclosed range has a suitable utility. Also see MPEP § 2131.03 and § 2123.

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Response to Arguments

Applicant's arguments with respect to rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed July 29, 2004 have been fully considered but they are not persuasive.

Applicants' exhibits in the attached documents 1-3 and statement in pages 14-19 of instant remarks are noted. But, document 1 fails to show either Ag, Cu, Ni, and/Fe is critical because copper dissolution rate is zero when Ni/Fe is zero. Furthermore, in view of instant Figures 8-10 of specification, that in general copper dissolution rate is less than 0.2 $\mu\text{m}/\text{sec}$ regardless the Ag, Cu, Ni, and/or Fe contents. Document 2 is not related to instant claims because it Ag content (3.5 wt.%) is outside the claimed range. Document 3 fails to show the combination of claimed alloying elements because Ni/Fe content is not included.

Conclusion

The above rejection relies on the reference(s) for all the teachings expressed in the text(s) of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the text(s) of the reference(s). To

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emphasize certain aspect(s) of the prior art, only specific portion(s) of the text(s) have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combination of the cited references may be relied on in future rejection(s) in view of amendment(s).

All recited limitations in the instant claims have been met by the rejections as set forth above.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore provide a concise explanation and support with page and line number in the specification for any amendments made to the disclosure. See 37 C.F.R. Part §41.37 (c)(1)(v).

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
October 18, 2004